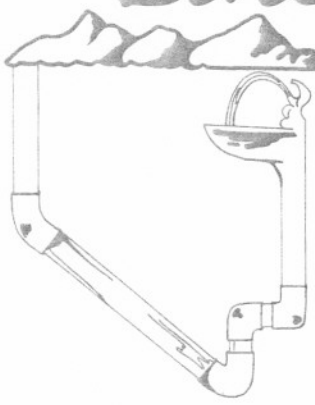
Water Lines



Water Lines is the resource newsletter and calendar of the Nevada Drinking Water and Wastewater Training Coalition.

Volume 10 Spring 2003 issue

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***Water Lines* Special Insert**
Selecting and Working with an Engineer

Water Lines is funded by **Rural Community Assistance Corporation** through a contract with the Nevada State Health Division.

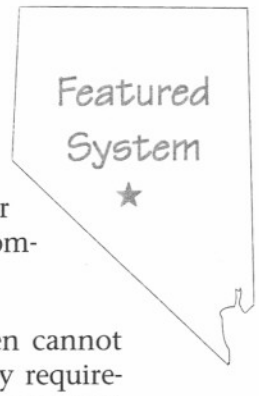
Editor, Abigail Johnson, RCAC

Editor and Production, Julia Helmreich, RCAC

Featured Systems: Nevada rural systems upgrade with state water grant programs

By Philip Walsack, Rural Community Assistance Corporation

A water system is the core of a community. Buried water transmission and distribution piping systems bind a community together in much the same way that networks of streets do on the surface. While a good water system can go unnoticed, a bad water system can jeopardize a community's viability.



Rural water districts often cannot keep pace with regulatory requirements and find financial resources to keep their water infrastructure in good condition. Fortunately, there are more financial resources in Nevada than any other western state. Forward-thinking state legislators have eased the financial burden on small Nevada communities.

Nevada has several sources of funds for small community infrastructure rehabilitation projects. The state's Assembly Bill 198 has provided a funding catalyst and is often combined with Community Development Block Grant (CDBG), Nevada State Revolving Fund (NvSRF), and U.S. Department of Agriculture (USDA-RD) loan and grant programs.

Funds in the Assembly Bill 198 (AB-198) grant program are nearly exhausted, but the needs of small Nevada utilities remain. For the grant program to continue, the 2003 Legislature must authorize additional funds.

AB 198 is created

In the late 1980s, the Nevada State Legislature became concerned about the financial impacts that the Safe Drinking Water Act (SDWA) Amendments would have on Nevada's small utilities. A 10-member legislative committee, led by Assemblyman Joe Dini, Jr., evaluated the financial impacts of the SDWA. The group studied water issues and published a report to the Legislature, *Study of the*

In Clark County, the Kyle Canyon Water System used an AB 198 grant to complete much-needed repairs and install new equipment, including a new well and additional storage tanks.

(Continued on page 4)

The Spigot Q & A

Q.1. What is a saturator?

A.1. A device which produces a solution for fluoridation. It is often a cylindrical container with granular sodium fluoride on the bottom. Water flows either up or down through the sodium fluoride to produce the solution.

Q.2. What ions cause hardness in water?

A.2. Hardness is caused mainly by calcium and magnesium ions.

Q.3. What causes the formation of trihalmethanes?

A.3. They are formed by reactions of natural organic compounds with halogens, such as chlorine.

Q.4. What factors influence trihalmethane production?

A.4. Time, temperature, pH, and the types and concentrations of chemicals.

Q.5. How could determine if a float was stuck?

A.5. A stuck float would indicate a very constant level. To determine if the float is actually stuck, try jiggling its cable to free it or take other measures to cause a fluctuation in reading.

Source for all of the above questions: Water Treatment Plant Operation Vol I and II, K. Kerri

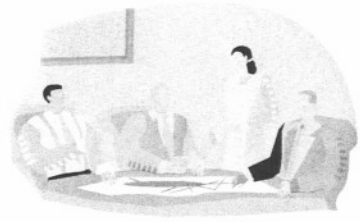
The Spigot *features Q&A on a variety of topics with typical certification exam questions. Crystel Montecinos, Program Development Specialist with the UNR Cooperative Extension, prepares* The Spigot.

Nevada Arsenic Working Group formed

By Steve McGoff, Public Utilities Commission

The Arsenic Working Group (AWG) keeps abreast of new arsenic treatment technologies, informs affected water utilities about treatment options and identifies available funding sources for treatment systems.

The AWG is an outgrowth of the Infrastructure for Nevada's Communities (INC) group. The newly formed AWG held its first meeting recently. Participants Micheline Fairbank, RCAC; Bob Foerster, NvRWA; Rick Reighley, BHPS; Tom Whalen, NDEP; Mike Holm, USDA-Rural Development; and Steve McGoff, PUC, discussed current treatment technologies and how Nevada utilities might implement them.



The AWG also considered:

- using AB 198 water grants as a state funding source for arsenic treatment;
- whether state regulators should provide oversight to consulting engineers on the best available technology for utility arsenic treatment;
- the drawbacks and benefits of Point of Use (POU) and Point of Entry (POE) for small systems;
- whether the utility or the homeowner will be responsible for maintaining the POE or POU system;
- the challenge of home entry for utility personnel; and
- whether state regulators should provide information and oversight to affected utilities on choosing a treatment technology, which could help ensure that the treatment system proposed for a small utility is the most economical and the best available technology for that particular system.

The AWG plans to meet periodically throughout the year. For more information, or to be notified of meetings, contact AWG chairman Steve McGoff at 775/687-6040.

New Nevada operators certified

These operators passed entry level water certification exams for distribution grades 1 & 2 and treatment grades 1 & 2. Congratulations to all!

Distribution grades 1 & 2

James Callahan, D-1; Jim Cole, D-1; Ray Dummar, D-1; Mario Fernandez, D-1; Wilbur Haley, D-1; Brad Hirter, D-1; George James, D-1; William Johnson, D-1; Scott Knecht, D-1; Gregg McMillen, D-1; Kirk Nicholes, D-1; Richard Ray, D-1; Claude Rose, D-1; James Rosenberger, D-1; Dennis Dobyns, D-2; John Hulett, D-2; Stevan Palmer, D-2; Jamaine Smith, D-2; Mark Walters, D-2.

Treatment grades 1 & 2

Darel Barlow, T-1; Samuel Billin; T-1; Thomas Carrigan Jr., T-1; Jonathan Farnsworth, T-1; Steven Hansen, T-1; John Hulett, T-1; Pamela Mott, T-1; Ramon Rodriguez, T-1; Claude Rose, T-1; Eric Sautter, T-1; Todd Welty, T-1. Jeffery Blue, T-2; Scott Combs, T-2; Jared Dooley, T-2; Stevan Palmer, T-2; John Parkin, T-2; John Shaw, T-2.

WET Puts Water In the Classroom

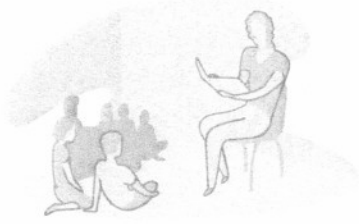
By Mary Kay Riedl, Nevada Division of Environmental Protection

The interdisciplinary Water Education for Teachers Project (WET) supplements K-12 curriculum and integrates water education into the classroom. Project WET opens educators to a network of nationally recognized water education, training programs and publications under the umbrella organization of *The Watercourse* program of Montana State University in Bozeman, Montana.

In Nevada, the Nevada Division of Environmental Protection, Bureau of Water Quality Planning sponsors Project WET with funding from the U.S. Bureau of Reclamation and the U.S. Environmental Protection Agency. The program increases awareness, appreciation, knowledge and stewardship of Nevada's water resources. The importance of water resources and the need for wise water management is emphasized.

Nevada Project WET offers educator workshops, classroom-ready teaching aids and publications, groundwater and watershed models and a network of specialists to call upon, so that incorporating water education is easy for teachers and relevant for students.

Workshops where educators are introduced to the *Project Wet Curriculum and Activity Guide* and learn about local water issues are the core of the program. Most workshops are 15 hours, and participants earn one recertification credit from the State Department of Education. The Guide



provides more than 90 activities and lesson plans to enhance learning. For example, the lesson *Perspectives,* for middle and high school government or environmental science classes, teaches students to analyze public values toward water issues and helps them evaluate approaches to managing water resources. In *The Grave Mistake,* designed for history, earth or environmental science, students analyze data to solve a mystery and identify a potential polluter. The Guide also contains lesson plans for specific topics and subject areas, including time requirements, grade levels, appropriate settings and teaching methods.

The workshops include one or more speakers who provide an overview of local water issues. This helps to reinforce the need to protect local water resources and to inspire a sense of responsibility and stewardship. The ultimate goal is for the participants to take the resources and information obtained from the workshop back to the classroom and their students.

Project WET is a great resource and teaching aid to integrate water education into every subject. If you are interested in learning more about Nevada Project WET please contact Mary Kay Riedl, Nevada Division of Environmental Protection at 775-687-9454 or mriedl@ndep.nv.gov.

Attend Advisory Board Meetings for Credit

By Darrin Price, Advisory Board to the State Board of Health on Certification of Operators of Public Water Systems

Certified Nevada operators can earn Continuing Education Credits (also known as CEUs) for attending Advisory Board to the State Board of Health on Certification of Operators of Public Water Systems meetings (Operator Certification Advisory Board.)

If you are a certified operator, you need CEUs to maintain current certification.

The rule is: one credit for 10 hours of attendance; credit for five hours (or one board meeting).

Then come to the meetings and tell us what your training needs are, how the regulations affect your system, and what you would like to see changed or improved. Or attend the meetings and just watch—learn more about how regulations and policies are made or changed and how you can affect those changes.

To make attendance even easier, the meetings are being videoconferenced from Reno to Las Vegas and Elko. Watch the big screen and play a part in helping Nevada improve the training, performance, awareness and participation of its operators. We need your help!

The next meeting will be held on Friday, June 27, 2003 at 9:30 a.m. in Reno, Las Vegas and Elko – specific sites will be announced. Hope to see you there.

For info on the board meetings, contact Julie Flanagan at 775/687-6615 ext. 267 or go to *http://health2k.state.nv.us/bhps/phe/MeetingSchedule.pdf.*

Featured Systems

(continued from page 1)

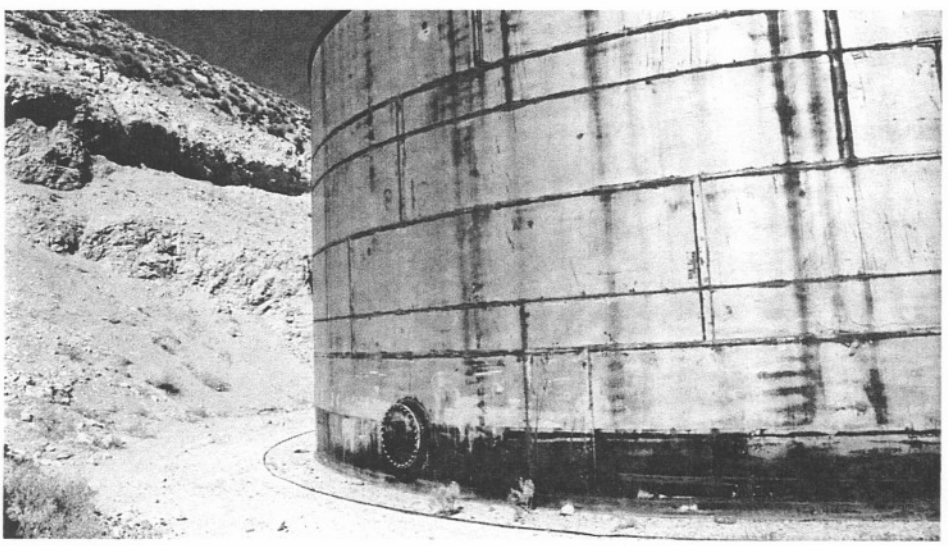
Laws, Regulations, and Policies Related to Water and Wastewater Resources in Nevada. The report estimated that $250 million were needed to bring Nevada's water systems into regulatory compliance. More importantly, the report concluded that small systems (those serving less than 3,300 people) and rural systems (those that could not be easily consolidated) needed financial assistance. The Report resulted in passage of AB 198 and AB 237, which still exist today.

The AB 198 bill, passed in 1991, set aside grant funds to assist small communities to comply with acute and chronic health violations; rehabilitate infrastructure by upgrading pipelines and storage; and refinance existing debt. The total value of the AB 198 Program stands at $59 million.

In 1999, a companion grant program to the AB198 was funded with $10 million. AB 237, a water conservation grant program, assists water districts to conserve and meter water. The Nevada Division of Environmental Protection (NDEP) manages the AB 198 and AB 237 grant programs, which have combined assets of $69 million. Grant awards are determined by the five-member Board for Financing Water Projects, which meets quarterly.

Goldfield Utilities in Esmeralda County replaced these old pipes and its distribution system using AB 198 funding.

During the past 12 years, these grant funds have helped water systems in 15 of 17 Nevada counties (Carson and Humboldt have not requested funds). To date nearly $67 million of the $69 million has been awarded.



Tonopah Public Utilities in Nye County is rehabilitating this storage tank and several others using AB 198 grant funds. It also is replacing distribution piping.

The program provides grants to water utilities based on ranking on the State Drinking Water Revolving Loan Fund list and an NDEP priority list. By law, grant awards range from 57.1 percent to 87 percent of a utility's proposed project.

The AB 198 and 237 Programs' funds often cover the majority of a small water utility's project cost. Without this program, utilities would be faced with funding projects in phases, which delays completion. A longer project time frame usually raises overall project cost, and some small systems cannot afford to make improvements.

Helping in Clark County

In Clark County, the Kyle Canyon and Blue Diamond water systems have been rehabilitated using AB 198 and 237 Program funds. Las Vegas Valley Water District (LVVWD) administered both grants on behalf of its small satellite utilities.

Kyle Canyon Water District was formed in 1973 when Clark County formed a Special Improvement District. Significant emergency repairs and other critical improvements were necessary in the early 1990s. LVVWD, on behalf of Kyle Canyon, received an AB 198 grant. The grant was matched with increased user rates. LVVWD drilled a new well; rehabilitated transmission and distribution piping; installed pressure reducing stations and fire hydrants; built two new storage tanks; and added frost free meter boxes. In 2001, LVVWD received a second grant (leveraged with a low-interest loan) to drill another water well (used for back up and emergencies) and constructed a new storage tank.

LVVWD also operates and maintains the Blue Diamond Water System. In the mid-1990s, LVVWD identified several necessary improvements that would ensure a safe and reliable drinking water supply. In

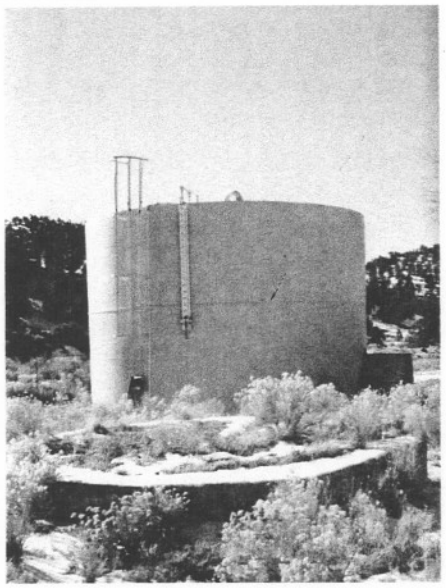
1996, LVVWD, on behalf of Blue Diamond, received another grant. This grant was matched with funds obtained through user rates. The project included constructing a transmission main; replacing distribution system piping; and constructing a new water storage tank.

Stretching dollars by leveraging funds

This program has many side benefits. Grant funds from the AB 198 and 237 Program are often used to leverage other funds to complete infrastructure projects. These other matching fund sources include the Nevada Commission of Economic Development's CDBG Program; NvSRF; and USDA-RD.

Gerlach (Washoe County) used AB 198 grant funds in tandem with CDBG grants funds. The community needed a treatment plant to comply with regulations imposed in 2000 limiting the concentration of uranium in its drinking water. Gerlach used a AB 198 and 237 award to leverage CDBG funds as a portion of its match in 2002.

Kingston (Lander County) used its AB 198 grant award to match CDBG funds. With funding in place, Kingston rebuilt the backbone of its distribution system; looped portions of it distribution lines; and added new storage tanks.



The Manhattan System, Nye County, used its grant to build this water storage tank.

USDA-RD loan and grant dollars also have been a mainstay of matching funds for Nevada utilities.

Tonopah (Nye County) is an excellent example of a community that used USDA-RD's grant and loan program to match AB 198 funds. Tonopah Public Utilities (TPU) needed to complete an extensive infrastructure rehabilitation program. TPU is building three new storage tanks, rehabilitating three tanks and demolishing four unstable tanks. It also is replacing undersized distribution piping. TPU received a AB 198 grant award, and USDA-RD grant award and took out a USDA-RD loan.

Topaz Ranch Estates General Improvement District (TREGID) in Douglas County also used a AB 198 grant to match its USDA-RD loan. The district used these funds to rebuild three storage tanks. TREGID installed fire hydrants; pressure reducing stations; new piping and booster stations.

THESE GRANT FUNDS HAVE HELPED WATER SYSTEMS IN 15 OF 17 NEVADA COUNTIES.

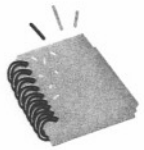
AB 198 grant funds have also been matched with the Nevada State Revolving Loan Fund administered by the Nevada State Health Division. Kingsbury GID (Douglas County) is an example of this type of grant/loan match. Kingsbury GID was granted an AB 198 and 237 award. The GID then borrowed additional dollars from the Revolving Loan Fund. The project includes new transmission and distribution mains, and new storage tanks and water meters.

Battle Mountain (Lander County) requested an AB 237 grant before using the AB 198 grant option. Battle Mountain's transmission mains are very old and have significant leaks. By replacing the mains, a significant amount of water was conserved. The system was awarded a grant to replace a leaky transmission main.

County	Projects	Grant Amount
Churchill	1	$4,733,787
Clark	4	$4,330,409
Douglas	7	$17,479,161
Elko	4	$4,439,212
Esmeralda	2	$2,148,020
Eureka	1	$375,000
Lander	3	$3,253,620
Lincoln	1	$1,176,868
Lyon	5	$12,284,943
Mineral	2	$1,941,892
Nye	3	$5,681,625
Pershing	1	$379,165
Storey	2	$5,154,062
Washoe	5	$3,049,038
White Pine	1	$476,018

Resource Round-up

Wastewater Security Guide Offered



The Wastewater Security Guide is now available on the web at *www.netc.wvu.edu.*

ABC's On-line Water Operator Certification Practice Exam

The Association of Boards of Certification (ABC) offers the on-line Very Small Water System Operator Certification Practice Exam. The sample questions in the practice exam help operators become familiar with the types of questions on the ABC Very Small Water System Certification Exam. However, the practice exam is not intended to be a substitute for studying for the certification exam.

Register to take the practice exam at *http://store.lxr.com/product.asp?productid=114.* The exam fee is $20 and must be paid by credit card. Please note that the credit card statement will show the fee being paid to LXR, not ABC. To take the examination on the web, you must have Internet Explorer 3.0 or higher (or Netscape 3.0 or higher). Internet Explorer 5.0 is highly recommended. You must also have the "cookies" feature enabled on your browser.

For more info, go to the ABC website at *www.abccert.org* and click on the menu item "Web-based Testing."

Assess wastewater system vulnerability

Free software available

The Vulnerability Self-Assessment Software Tool (VSAT) helps wastewater utilities analyze their vulnerability to both international and natural disasters. VSAT organizes data, supports and documents vulnerability analyses, and presents complex information in an easy-to-understand format for potential utility assets. To order, go to *www.amsa-cleanwater.org/about/about.cfm.*

U.S. EPA Drinking Water Poster Gives Consumers the Big Picture

Risks to drinking water come in many forms. This poster provides a detailed graphic description of these risks. To view the poster or download it online, go to *www.epa.gov/safewater/publicoutreach/landscapeposter.html;* or call 800/490-9198 to order a copy. Ask for publication number EPA816-H-02-001.

Water Distribution Exam Study Materials Available Through CA/NV AWWA

The CA/NV Section of the AWWA is offering recommended study materials for water distribution operators preparing to take certification exams.

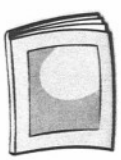
The study materials include manuals such as *The Water Distribution Operators Training Handbook,* by AWWA, *Water Distribution System Operation and Maintenance,* by Ken Kerri, and *Finance and Water Rates,* by AWWA. Many other texts are also available. The materials cover subjects for Grade I through Grade IV examinations. For more information, or to order materials, Call Kelly McGuire, Office Coordinator at 909/481-7200; or e-mail her at *kmcguire@ca-nv-awwa.org.*

USDA launches $1.4 billion rural telecommunication technology program

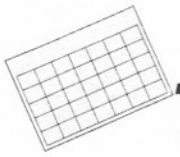
The U.S. Department of Agriculture (USDA) will expand efforts to bring farmers, rural residents and businesses greater access to improved telecommunication technology through more than $1.4 billion in loans and loan guarantees to rural telecommunications providers.

The USDA proposes to invest $177 million in fiscal year 2004 to upgrade its County Service Centers, most of which will be used to provide Geographic Information System technologies to these offices, allowing farmers and ranchers more access to satellite mapping and planting information. Service centers are located in Elko, Fallon, Winnemucca and Las Vegas. Guidelines for the program and information on how to apply for loans is available from USDA's web site at *http://www.usda.gov/.*

National Drinking Water Clearinghouse offers free ground water awareness book



Protect Your Ground Water: Educating for Action, a 64-page book describing how communities can implement a groundwater awareness program to safeguard supplies, is available at no cost from the National Drinking Water Clearinghouse. To order, call 800/624-8301 or e-mail ndwc_orders@ndwc.wvu.edu and request item #DW-BKPE66.



Training Calendar 2003

May 4-10 — 2003 National Drinking Water Week. Info: Contact Sabrina McKenzie, by e-mail at smckenzie@awwa.org; or by phone, 303/347-6140; or go to *www.awwa.org/advocacy/dww/.*

June 2-4 — Washington DC — EPA 2003 National Source Water Protection Conference. The conference will promote protection planning and coordination; and fostering partnerships. Info: *www.epa.gov/safewater/protect/swpconf.html* or call the Safe Drinking Water Hotline at 1-800/426-4791. Advance registration required.

June 6-10 — Reno — National Environmental Training Association Annual Conference/ Workshops. Info: Charles Richardson, 602/956-6099.

June 9-11 — Reno — National Environmental Health Association Onsite Wastewater Systems Conference at the Reno Hilton. Topics include, onsite wastewater overview, public health impacts of OSWS, information management technology, onsite wastewater management, federal and state onsite policy updates and more. Cost is $465. Info: 303/756-9090 ext. 0.

♦ **June 15-18** — Anaheim, CA — AWWA 2003 Annual Conference and Exposition at the Anaheim Convention Center. Course topics include capital financing, customer service, regulatory compliance, drought and security plans. New for 2003, special track for upper level managers. Info: *www.awwa.org.*

♦ **June 25-26** — Reno — RCAC Water Fair. Info: John Dailey at 775/882-8887.

♦ **June 27** — Reno, Las Vegas and Elko — Advisory Board to the State Board of Health on Certification of Operators of Public Water Systems, 9:30 a.m. Locations TBA. Info: *http://health2k.state.nv.us/bhps/phe/MeetingSchedule.pdf* or call Julie Flanagan, 775/687-6615 ext. 267.

July 29-Aug.1 — Morgantown, WV — National Environmental Training Center for Small Communities: Environmental Training Institute. Onsite wastewater system technologies, financial and managerial skills and system security. Info: MaryAlice Dunn, 800/624-8301, ext. 5538; e-mail, mdunn@wvu.edu; or go to *www.netc.wvu.edu*

September 25-27 — Laughlin — Tri-State Seminar on the River — Topics include security; vulnerability assessment; surface and ground water; water distribution; wastewater treatment and collection; and other specialty topics. Info: Annette Duarte, 520/740-6539, or go to *www.tristateseminar.com.*

October 6-9 — San Diego, CA — CA-NV AWWA Fall Conference at the Sheraton San Diego Hotel and Marina. Info: 909/481-7200.

November 6 — Reno — CA-NV AWWA Satellite Teleconference on Water Quality, UNR Getchell Library projection room. Info and registration: Stephanie Mendoza, 909/481-7200.

UNR – Colleges of Agriculture, Biotechnology, and Natural Resources & Cooperative Extension

Videoconference Training Calendar 2003

TBD — Reno and Rural Locations — UNR videoconference classes on water systems operation, maintenance and management. For information, locations, topics or to be added to the mailing list, contact Crystel Montecinos at 775/784-6853.

Wastewater Certification Board testing

April 10, 2003 — EXAMINATION

Wastewater certification exams will be given the second Thursday in April, July and October; call for locations. Info: 702/433-1498 *or www.nvwea.org.*

Community College of Southern Nevada Wastewater & Water Technology Program

Info: LeAnna Risso, 702/434-6600 ext. 6418.

WWET training in Clark County

Info: Gladys Alford, 702/258-3834; see *www.wwet.org* for a current training calendar.

State of Nevada Water Certification Exams

All exams will be proctored some time during the week of the date listed. Applications are due to the state (Steve Brockway) 30 days before exam dates. A proctor will contact examinees to schedule testing. 2003 exam dates are June 2, Sept. 8 and Dec. 1. Info: Debra Kaye, 775/834-8114.

♦ *This symbol designates training pre-approved by the Nevada State Health Division for continuing education units (CEU) credit. Other training may be eligible for CEUs but is not yet pre-approved. Before attending any training, contact the Health Division at 775/687-6615 ext. 235 for approval. Ten hours of approved training equals 1 CEU. A different ratio applies for safety training. Contact Steve Brockway at 775/687-6615 ext.235 for details.*

Nevada Drinking Water and Wastewater Training Coalition

American Water Works Association California/Nevada Section
www.ca-nv-awwa.org
Philip Walsack, Smaller Utilities Committee Chair, 775/882-8887
Nicole Schreuder, training, 909/291-2103

Indian Health Service
Dominic Wolf, 775/784-5327

Nevada Division of Environmental Protection
www.state.nv.us/ndep/index.htm
Leo Drozdoff — Water Pollution Control, 775/687-9416
Nevan Kane — Wellhead Protection, 775/687-9426
Jon Palm — AB 198 Water Grant Program, 775/687-9433

Nevada Rural Water Association
www.nvrwa.org
Georgia Greenrod, 888/884-2055
Bob Foerster, 775/721-7972
Jonn Scovil, 888/884-2055
Curtis Duff, 888/884-2055
Jon Anderson, 888/884-2055
John Pesci, 888/884-2055

Nevada State Health Division
www.state.nv.us/health/bhps
775/687-6615
Jim Balderson, SWAP, ext. 228
Adele Basham, DWSRF, ext. 265
Steve Brockway, CEU approval, ext. 235
Galen Denio, ext. 229
Dana Pennington, ext. 237

Nevada Water Environment Association
www.wef.org
Bruce Johnson, 702/369-6175
Starlin Jones, 775/861-4104
Rick Warner, 775/954-4621

Public Utilities Commission of Nevada
www.state.nv.us/puc
Steve McGoff, Utility Engineer, 775/687-6040

Rural Community Assistance Corporation
www.rcac.org
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Philip Walsack, 775/882-8887
Lisa Thayer, 775/882-8887

U.S. Environmental Protection Agency, Region 9
www.epa.gov/region09
Marvin Young, 415/972-3561

USDA-Rural Development
www.usda.gov/rus/water/index.htm
Mike Holm, 775/887-1222, ext. 26
Kay Vernatter, 702/262-9047 ext. 113

University of Nevada, Reno Dept. of Civil Engineering
Dean Adams, 775/784-1474

UNR Environmental & Resource Sciences and Nevada Cooperative Extension
www.unce.unr.edu/swp
Mark Walker, 775/784-1938

Water/Wastewater Education and Training Consortium of Southern Nevada — WWET
www.wwet.org
Marie Pollack, Chair, 702/298-3113
Gladys Alford, Registrar, 702/258-3834

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Nevada Drinking Water and Wastewater Training Coalition

Water Lines

Spring 2003

Water Lines Special Insert

Water Board Basics

Selecting and Working with an Engineer

By Abby Johnson, Rural Community Assistance Corporation

Does your board need an engineer?

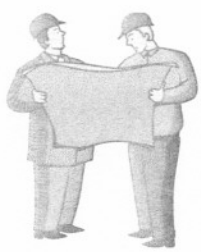
You will need a licensed professional engineer to determine the condition of your system's water and/or wastewater infrastructure, estimate costs and design project alternatives. The engineer may also include information on how to pay for improvements, such as the community's eligibility for loans and grants to finance them.

Utilities may also need to retain an engineer to provide advice and assistance on a monthly or as-needed basis for ongoing utility operations.

Selecting an engineer or an engineering firm that is a good match for your project and community is key to a successful infrastructure improvement project.

When do you need an engineer?

Most funding agencies require a Preliminary Engineering Report (PER), developed for the community by a registered professional engineer. The PER is the first step in solving infrastructure problems; it describes the system, proposes alternatives or options to solve the problems, and includes cost estimates, projected user rates and possible funding sources.



Once the project is identified and funded, an engineer must design the project in consultation with the community and the regulatory agencies. The engineer develops the bid documents, handles pre-bid and preconstruction conferences with contractors, and often serves as, or provides the inspector for construction and post-construction services during the first year of operation.

The PER is a review and assessment of the water or wastewater system. The engineer should evaluate the entire system; identify all system components in need of repair or replacement; identify and prioritize solutions; and present phased solutions (if they are possible).

How does the board select an engineering firm?

Although not required, it is often useful for the board to appoint a committee to guide the selection process. If created from the start, the committee defines and describes the problem(s) to be solved, drafts the Request for Proposals (RFP), prepares questions for the interview process, evaluates the proposals, checks references, and narrows the field in a systematic and consistent fashion for the governing board. The selection committee may, in some cases, complete the final interview.

If a selection committee is used, the committee must provide the governing board with all of its findings, rankings and evaluations. Remember, the governing board makes the final decision (by voting as a board), not the selection committee. Only a governing board can bind an engineering contract.

To select an engineer who is a good fit for the job, and to comply with federal and state procurement, the following steps are recommended.

1. Understand your system.

For example, your water board knows that the system is out of compliance: the tank is too small; the distribution system leaks; some pipe is undersized; and pressure is uneven. The problem may also include a lack of understanding or support from the public. The challenge of obtaining affordable funding to make the improvements may be an additional task. Do not limit yourselves. A water system may seem to need a new storage tank, but the distribution system may have excessive leakage. When the distribution system is rehabilitated, the perceived need for more storage may no longer be an issue.

Draft a description of what you think should be replaced and upgraded. This provides an engineering firm with a general idea of your system's condition. Involve the board, manager, operator, regulatory agency and community members to ensure that it is inclusive and accurate.

2. Do your homework.

Use the resources of the regulatory and funding agencies, and technical assistance providers to learn about possible solutions to your problem. They can direct you to information on technology innovations that may be useful in the evaluation process. For example, if your system is out of compliance with a primary drinking water standard, you should understand, in general terms, which technologies can help you return to compliance. If you comprehend the basic technology and terminology, you can ask better questions and understand what the engineers are telling you.

3. Request proposals.

If you will be obtaining financing through a federal or state agency, contact the agency to obtain its requirements for engineer selection, PERs and environmental reports. The USDA Rural Development PER Bulletins have been adopted by all funding sources in Nevada including Community Development Block Grant, AB 198 and the Drinking Water State Revolving Fund.

Draft exactly what you want the engineer to do. This will be the body of the RFP.

Typically, the RFP should include:

- A brief description of the community, including populations, relevant demographics and location;
- An evaluation of the entire system, and identification of the project phases and deliverables that would be produced as a result of the contract with the engineer (for example, the PER). In the case of a PER, be clear that your community will need several alternatives, cost estimates and a recommended alternative;
- The deadline for proposal submittal;
- Criteria to be used to evaluate proposals (ex.: familiarity with rural Nevada, experience in obtaining grants and loans for similar projects);
- A statement of expectations and needs (engineer should expect to attend monthly board meetings; community will need engineer to seek outside funding on behalf of the community);
- A request for resumes for the principals of the firm, project manager and staff who will be directly involved in the project;

- A list and description of relevant successfully completed projects;
- A request for references; and
- Whether a formal presentation or interview will be required.

4. Make a list of possible engineering firms.

Funding agencies usually have mailing lists of engineering firms. Also check with communities of similar size to obtain their lists.

5. Advertise and mail to engineers.

If you are a public body or want to obtain federal funding, follow NRS 332.115 and USDA RUS 1780.39(b)(1) guidelines for advertising your RFP. Allow enough time so that interested firms can respond to your advertisement by requesting the RFP. Be sure to list a contact person and telephone number in case there are questions.

If Community Development Block Grant funds are likely to be involved, an open and competitive selection process must be used and documentation retained. If you want to use your contract engineer of record, check with likely funding agencies to make sure that the selection process you employed is acceptable.

Be clear about when and where proposals are due, and what the cut off time is. (Note: it is especially important to specify if your area is not served by one-day overnight delivery service.)

6. Narrow the search.

The board or committee appointed by the board reviews, rates and ranks the firms based on the RFP notice criteria. If the committee has additional priorities, they should be defined and stated in the RFP. For example, if previous experience working with systems of a similar size is important, this could help to narrow the field. Each reviewer should be consistent. Keep a record of the review process so that you can provide it to the board or to an engineering firm that wants feedback on why it did not make the cut. A checklist for each reviewer that contains the same elements and room for notes and comments is one way to provide this consistency. Typically the board will invite the finalists to make oral presentations at a board meeting.

7. Check references.

The board/committee may conduct a reference check of the finalists to be interviewed, or if time allows, the board/committee can check references after the interviews and before a final decision is made.

Check the references provided and call contacts for "relevant projects" to determine performance. Ask the references whether the project was completed on time, were there change orders, did it cost more than the negotiated price, whether they were satisfied with the work, about the engineer's ability to communicate with board and public, and questions directly related to the kind of expertise that your board seeks.

8. Conduct oral interviews.

The board/committee should request that the project manager who will be working on the project make the presentation. You want to meet who you will be working with face-to-face.

The oral interviews are conducted in an open meeting. The board/committee should prepare a series of interview questions that reflect its priorities and ask each firm the same questions. It is also permissible to ask questions related to the firm's proposal. Treat each firm the same way during the interview process.

The board/committee may take action at that meeting (if shown as an action item on the agenda) by approving a resolution

to enter into negotiations with a firm. The board/committee may choose to check references and take action at the next meeting, based on the results of the reference check.

Nevada law (NRS 332.115) requires that engineers be hired based on qualification, not cost. Only after the engineer is selected based on merit is it permissible to negotiate the cost of services. These negotiations occur during open session per Nevada's open meeting law, NRS Chapter 241.

9. Hire the engineer.

Once the engineer is selected, and an agreed upon price is negotiated, the board must execute a contract with the engineer. If cost of services cannot be settled, then the board negotiates with the second choice firm. Be sure to send a letter promptly notifying all firms of the board's decision.

10. Retain the engineer.

At each stage of the process, (PER, design and construction) the board has the option to hire a different engineer.

Structure your engineering needs in phases. If an engineer does not perform in the PER phase, you have no obligation to hire that firm to design the project. However, if you are pleased with the PER, you may negotiate for future engineering phases with the same firm. Check individual funding agency requirements for special rules on this.

Summary

As a board member, your role is to make sure that the engineer is serving the board, meeting the terms of the contract and developing work products that are useful for the utility. A thorough and fair selection process will help get your project off to a good start.

The board's expectations of the engineer

- Communicate with the public
- Provide regular progress reports
- Initiate and sustain communication with the manager and board

- Help seek funding
- Be aware of the impact of costs on rates and ratepayers
- Attend board meetings as needed
- Meet deadlines
- Communicate with funding agencies and the designated local contact
- Provide a range of possible alternative problem solutions
- Be clear about costs, billing and change orders — no surprises
- Be able to explain project alternatives and costs in layman's terms

The engineer's expectations of the board

- Know the problem(s)
- Provide clear communication
- Designate the manager and/or a board member as the engineer's primary contact

- Ask questions
- Put items on the meeting agenda and take action promptly
- Pay bills in a timely manner
- Use the engineer's time wisely during community visits